



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
Fax 613 632-5246

D350-748-103
Job Sheet 181665



Part No: D350-748-103

Job Qty: 1 ea

Part Name: AS350 / AS355 Stainless Steel Fwd Crosstube



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 8/3/18

Job Tracking No:

Due Date: 8/24/18

DAS
35
9-89

Created By: Marie Lajeunesse

Type: Stock

Description:

Note: D350-478-143 REV:A IPP Rev:A PRELIM New Issue LL 12.05.08 lpp rev:B DEO ADDED POWDER COAT
JLM VERIFIED BY:JFS

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	1 Ea		8/24/18	0.00	0.00	Start Up Crosstubes-1		GP 2018-11-01
110	CNC Bend Skidtubes	1 pcs		8/24/18	6.53	3.45	CNC Bend Skidtube		GP 2018-11-01
127	QC	1 pcs		8/24/18	0.00	0.00	QC15		GP 2018-11-01
128	Crosstubes	1 pcs		8/24/18	0.00	2.49	Crosstubes-2		GP 2018-11-01
130	Crosstubes	1 pcs		8/24/18	0.00	2.49	Crosstubes-2		GP 2018-11-01
140	QC	1 pcs		8/24/18	0.00	0.00	QC5		GP 2018-11-01
174	Outsource	1 pcs		8/24/18			SKY002-VC		GP 2018-11-01
176	Packaging	1 pcs		8/24/18	0.00	0.00	Packaging2		GP 2018-11-01
178	QC	1 pcs		8/24/18	0.00	0.00	QC5		GP 2018-11-01
180	SprayPaint	1 pcs		8/24/18	0.00	0.99	Spray Paint		GP 2018-11-01
190	QC	1 pcs		8/24/18	0.00	0.00	QC14		GP 2018-11-01
200	Crosstubes	1 pcs		8/24/18	0.00	2.49	Crosstubes-2		GP 2018-11-01
210	QC	1 pcs		8/24/18	0.00	0.00	QC5		GP 2018-11-01
220	Packaging	1 pcs		8/24/18	0.00	0.00	Packaging1-3		GP 2018-11-01
230	QC	1 pcs		8/24/18	0.00	0.00	QC4		GP 2018-11-01
240	Packaging	1 pcs		8/24/18	0.00	0.00	Packaging3-1		GP 2018-11-01
245	DC	1 pcs		8/24/18	0.00	0.00	DC		GP 2018-11-01
250	QC21-FG	1 Ea		8/24/18	0.00	0.00	QC21		GP 2018-11-01

Part Op 110 - Bend tube as per Dwg D350-748-143 using CNC bender program D350F and Folio FT

Descriptions: CROSSTUBE DIMENSIONS AS PER DWG ***** UNDER BEND .225" PER SIDE ***** USE (4) DT9824 SHIM BLOC

TO CHECK STRAIGHTNESS****

127 - ***MARK CUT LINES***

128 - CUT TUBE AT HEIGHT ON FAI SHEET VERT HEIGHT _____ BY QC 15 LEVEL INSPECTOR _____
VERT TWIST 0.121 BY QC15 LEVEL INSPECTOR _____

130 - 1- Drill Tube as per Dwg D350-748-143 Using DT8876 A,B & C Drill Jigs, set-up drill table as per QSI 010 2- Deburr

3- Engrave Part # and Batch # as per Dwg D350-748-143 4- Remove all marks from tube within limits of D350-748-143

140 - CHECK 10 DEG HOLES WITH DT8876E (EUROCOPTER CLAMP)

174 - ISSUE P/O TO SKY SERVICE: PO001591

180 - ***VERIFY BY _____ BATCH # TO MATCH W/O _____ ***MASK SCRIBE B# & P# AND

VERIFY*** 1. Apply Axalta 13205S Cleaner inside and outside crosstube per QSI 005 4.1.4 BATCH: _____

LIMIT AIR PRESSURE TO 50 PSI WHEN INSTALLING AETC-1032 INSERT AND ONLY EXPAND INSERT ONCE

2. Axalta 230S Metalok inside and outside crosstube per QSI 005 4.1.4 BATCH: 138021 3. Prime inside and outside

crosstube per QSI 005 4.2 BATCH: 138962 4. Paint outside of crosstube per QSI 005 4.2 BATCH: 138956

190 - Then, Wrap in plastic bag to protect from scratches ***VERIFY BY _____ BATCH # TO MATCH W/O

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date : _____		Step #: _____		QTY Effective : _____				MRB (QSI042) Approval	
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Environment Doc/L Equip/Tool Handling/ Material Internal Transfer Tribal Knowledge Substance Past Expiry Date Misidentification				CATEGORIES Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐					

DART Aerospace Ltd.
1270 Aberdeen Street
Newbury, ON K6A 1K7
CANADA
TEL: 1 813 832-5200
Email: info@dartaero.com
www.dartaero.com

Container No: S123968



Part: D350-748-103

Job No: 181665

Serial No/Batch: S123968

Revision: A

Inspector:

Exp Date:

Instructions: TC STC SH06 - 27 Issue 2 Ref: FA-0676 SR02359NY 11/03/04, EASA S

200 - INSTALL GROUND WIRE INSERT, THEN INSERT SCREW AND WASHER 1-Abraide mating surfaces of support and crosstube with 180 grit sandpaper, clean the area with MEK or equivalent as per dwg 2-Install supports with Proseal 890 per D350-748-143 and QSI 015 A/R Proseal 890 Batch: 5096394 EXP: 3/19 3-Install supports clamps Using D18876 as per Dwg D350-748-141 Torque to 60-80 IN-LBS. PROSEAL CURE TIME 72 HOURS: Start: 18/11/04 Finish: 18/11/07 ***RE-CHECK TORQUE ON CLAMP AFTER PROSEAL HAS CURED FOR 72HOURS AS PER DWG.***

210 - ***RE-CHECK TORQUE ON CLAMP AFTER PROSEAL HAS CURED FOR 72HOURS AS PER DWG.***
 ***VERIFY BY _____ BATCH # TO MATCH W/O _____

230 - ***VERIFY BY _____ BATCH # TO MATCH W/O _____

240 - Identify and pack for shipping as per PPP D350-748-103 Location: _____ PPP Rev: _____

245 - Photocopy bluefile & type labels per PPPD350-748-103 CHG001

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D350-748-143TRN	Ss Crosstube Turning Detail	1 Ea (1 ea)	90-Start up Operation	
AETC-1032	Insert	1 Ea (1 ea)	200-Crosstubes	
D3502-1	Support	2 Ea (2 ea)	200-Crosstubes	
D5123-7	Clamp Cushion	2 Ea (2 ea)	200-Crosstubes	
MS21920-20	Clamp	2 Ea (2 ea)	200-Crosstubes	
MS51958-63	Screw	1 pcs (1 ea)	200-Crosstubes	
NAS1149C0363R	Washer	1 Ea (1 ea)	200-Crosstubes	
AN4-41A	Bolt	8 Ea (8 ea)	220-Packaging	<u>50589861</u>
AN4-6A	Bolt	16 Ea (16 ea)	220-Packaging	<u>5035945</u>
AN5-32A	Bolt	4 Ea (4 ea)	220-Packaging	<u>50899831</u>
D3500-1	Saddle	4 Ea (4 ea)	220-Packaging	<u>5088731</u>
D3501-1	Bushing	16 Ea (16 ea)	220-Packaging	<u>51214356</u>
MS21042L4	Nut	24 Ea (24 ea)	220-Packaging	<u>5094592</u>
MS21042L5	Nut	4 Ea (4 ea)	220-Packaging	<u>5093892</u>
NAS1149D0463J	Washer	32 Ea (32 ea)	220-Packaging	<u>5092780</u>
NAS1149D0563J	Washer	8 Ea (8 ea)	220-Packaging	<u>5080653</u>

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
90-Start up Operation	D350-748-143TRN	1	5	0
200-Crosstubes	AETC-1032 <u>F1152355</u>	① <u>13156-258</u>	235	0
	D3502-1 <u>F143847</u>	②	78	0
	D5123-7 <u>163264</u>	②	345	0
<u>MS21920-22</u> → <u>5073265</u>	MS21920-20 <u>5073265</u>	②	140	0
	MS51958-63 <u>F1134962</u>	①	66	0
	NAS1149C0363R <u>5054113</u>	① <u>5071001</u>	249 <u>5114906</u>	0
220-Packaging	AN4-41A	8	654	0
	AN4-6A	16	1,474	0
	AN5-32A	4	365	0
	D3500-1	4	113	0
	D3501-1	16	543	0
	MS21042L4	24	6,198	0
	MS21042L5	4	1,112	0
	NAS1149D0463J	32	10,335	0
	NAS1149D0563J	8	2,086	0

Part Specifications

Specifications could not be found.

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



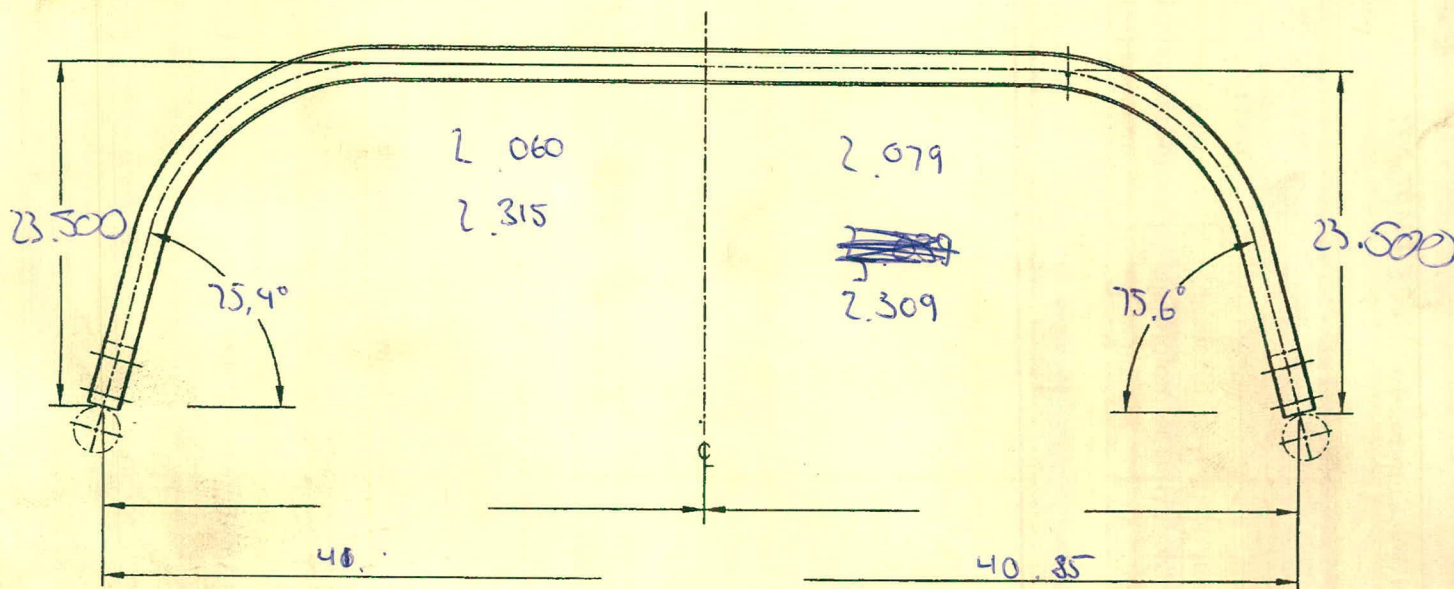
QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

DART AEROSPACE LTD		Work Order: 181665
Description: Crosstube High Fwd, SS (AS350/355)		Part Number: D350-748-103
Inspection Dwg: D350-748-143	Rev: A	Page 1 of 1

Required Dimension	Min	Max
Height	23.00	23.50
1/2 Span	40.77	41.03
Angle	75	77
Total Span	81.55	82.05
Bending Passes	7	--
Crushing	--	8%
Twist	--	0.38



	Side A	Side B
Bending Passes	38	35
Crushing	5.8%	5.2%
Comments		

QC15 Inspection	<i>[Signature]</i>
Date	18-11-01

Rev	Date	Change	Revised by	Approved
A	15.09.09	New Issue	KJ <i>[Signature]</i>	<i>[Signature]</i>

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval	
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
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Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER :							
Misidentified ☐	Past Due ☐								

Item	Qty	Part Number	Description
	-143		
	X	D350-748-143	CROSSTUBE ASSEMBLY (AS 350/355 HI FWD)
1	1	D6021-125	CROSSTUBE
2	2	D3502-1	SUPPORT
3	2	D5123-7	CLAMP CUSHION
4	1	AETC-1032	INSERT
5	2	MS21920-20 OR MS21920-21/-22	CLAMP (PER DART SPEC. M-MS21920-20/-21/-22)
6	1	NAS1149C0363R	WASHER (OR AN960C10)
7	1	NAS1635-3-8	SCREW (OR MS51958-63)
8	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6021-125 (17-4PH)
FINISHED LENGTH AFTER TURNING = 112.270±0.06 (AFTER BENDING/TRIMMING = 110.27 REF)
- 2) FINISH: PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCE: PER DART QSI 018 UNLESS OTHERWISE NOTED.
WALL THICKNESS ECCENTRICITY PER DART QSI 038 7.2
MIN. ALLOWABLE WALL IS -0.020 FROM NOMINAL
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: DART PART NUMBER "D350-748-143" AND BATCH NUMBER ON INSIDE OF CUFF
PER DART QSI 044 6.4 (VIBRATING STYLUS)
- 7) WEIGHT: 30.45 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE, EXCEPT FOR Ø0.290 HOLE.
- 9) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO CRACKING/CHIPPING/GROOVES.

TURNING

- 10) BLEND OUT ALL EDGES FROM MACHINING LONGITUDINALLY. TRANSITION SHOULD BE SMOOTH. NOTE: ALL HOLES ARE DRILLED AFTER BENDING.

BENDING

- 11) BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES PER SIDE. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D. ON TOP HALF OF BEND, AND 8% ON BOTTOM HALF OF BEND.
- 12) MAX AMPLITUDE OF RIBBLING ALONG BENT PORTION OF THE TUBE IS 0.030 (ZN A1-3)
- 13) MAX TWIST: WITH XTUBE LAYED FLAT ON SURFACE, THE DIFFERENCE BETWEEN CUFF HEIGHTS FROM THE SURFACE MAY BE NO LARGER THAN 0.38 (ZN C1-3).

ASSEMBLY

- 14) TO INSTALL D3502-1 SUPPORT: ABRASE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.02" TO 0.05" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- 15) TORQUE CLAMPS 60 TO 80 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. **PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.**

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 181665 MWS
18-08-03

UNDER REVIEW
9/15/12/4
REF 18-561 9/12/29

DEO ATTACHED

RELEASED

2015 MAR 18

9/EN 15-547

A	NEW ISSUE	CP	15.01.21
REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	15.01.21		

DART AEROSPACE LTD
HAWKESBURY, ONTARIO, CANADA

DRAWING NO. D350-748-143
TITLE CROSSTUBE (AS 350/355 HI FWD)
SCALE NTS

REV. A
SHEET 1 OF 4

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DQA: _____ Date: _____

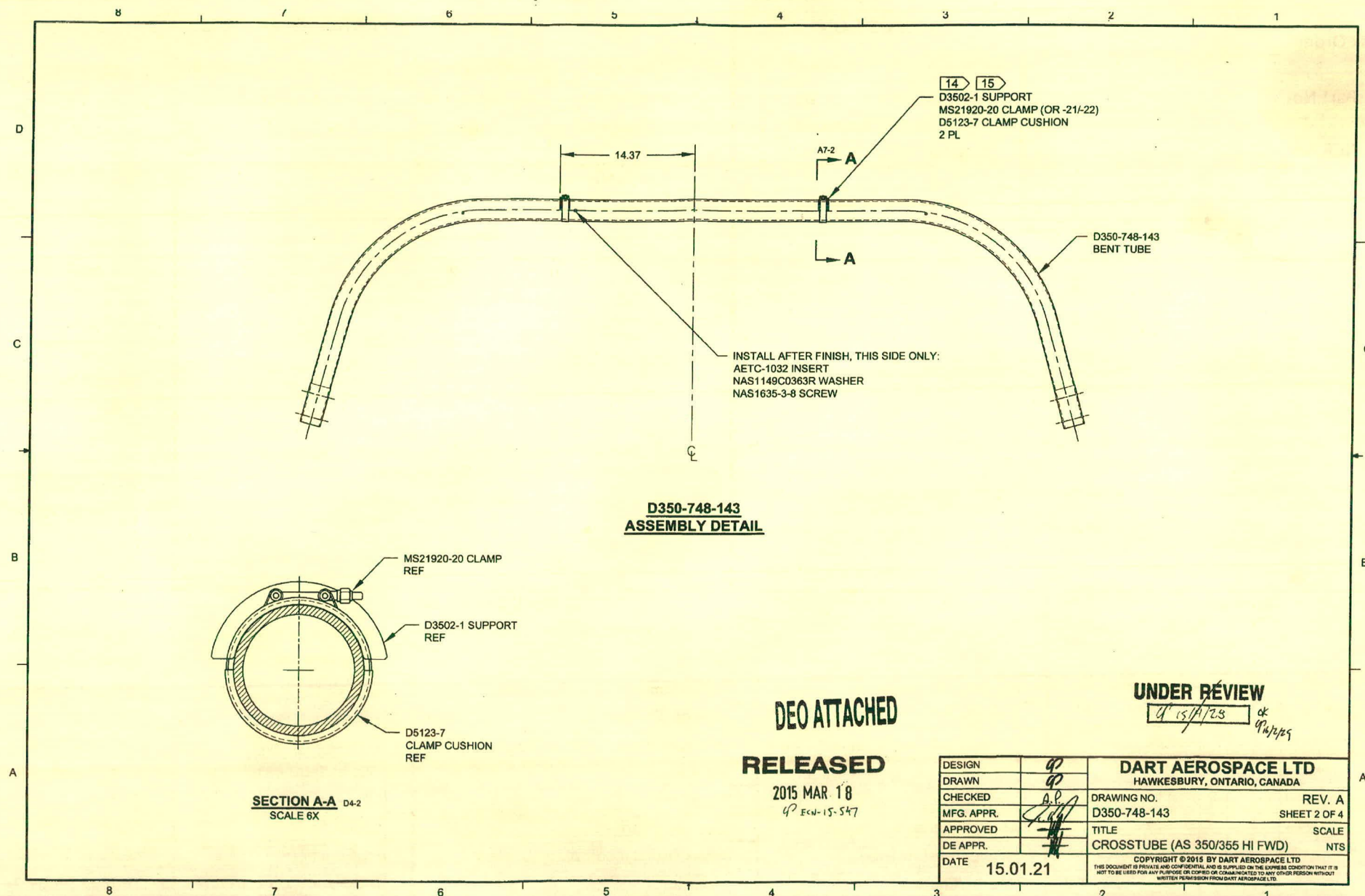


WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐							
		OTHER : ☐							



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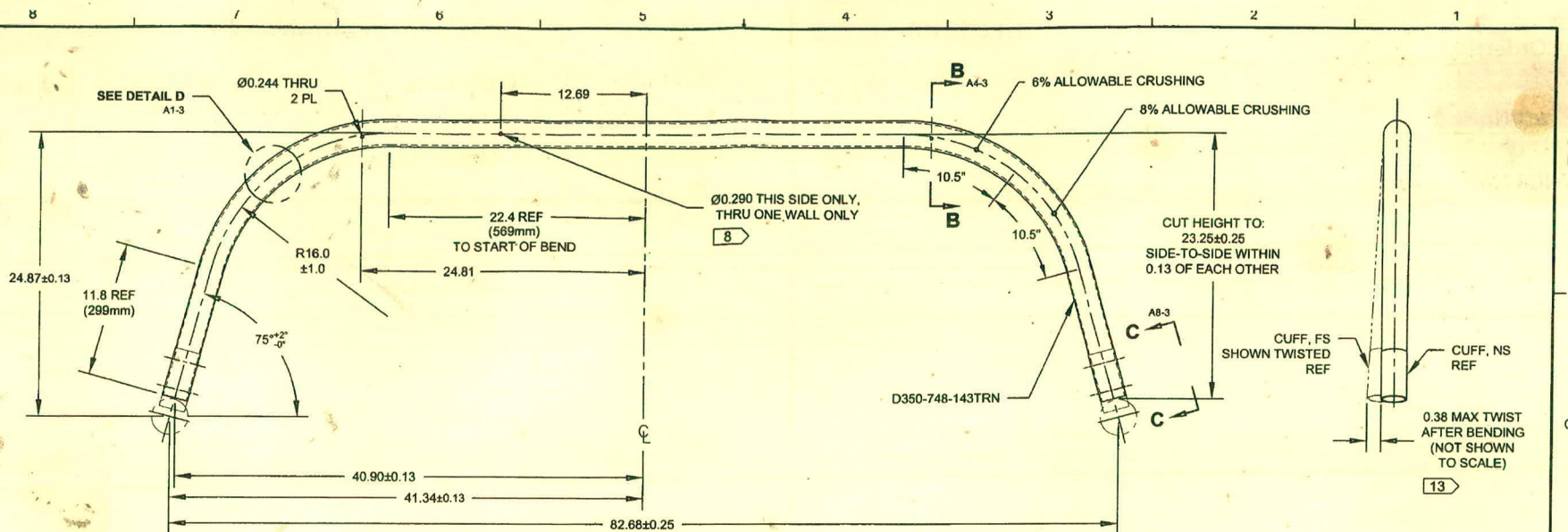
WORK ORDER NON-CONFORMANCE / UPDATE



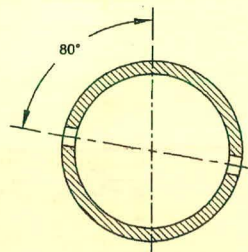
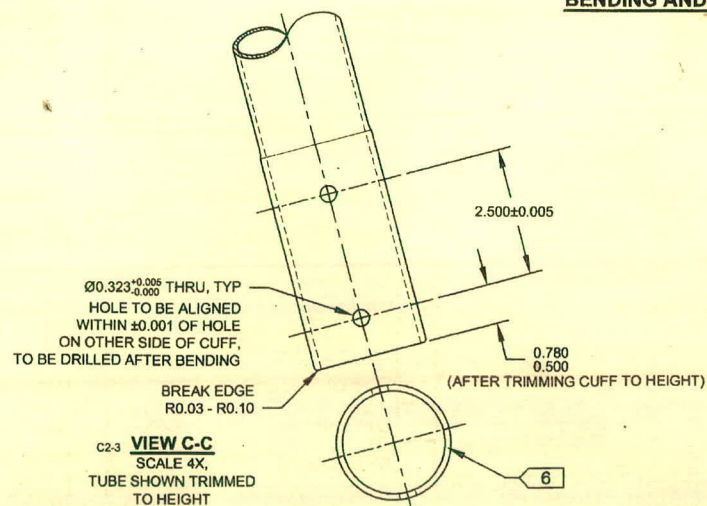
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Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width: 100%; border: none;"> <tr> <td style="width: 15%;">Skid-tube ☐</td> <td style="width: 15%;">Cross tube ☐</td> <td style="width: 15%;">Water Jet ☐</td> <td style="width: 15%;">Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																					
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D350-748-143
BENDING AND DRILLING DETAIL 11

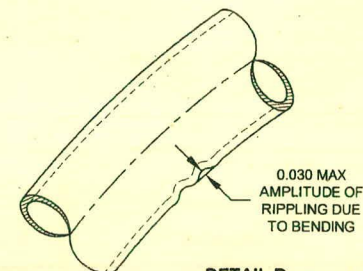


SECTION B-B D3-3
 SCALE 6X

RELEASED
 2015 MAR 18
 DEO ATTACHED

UNDER REVIEW

15/4/28
 4/4/29



DETAIL D D7-3
 SCALE 4X
 RIPPLING EXAGGERATED

DESIGN	42	DART AEROSPACE LTD	
DRAWN	42	HAWKESBURY, ONTARIO, CANADA	
CHECKED	A.P.	DRAWING NO.	REV. A
MFG. APPR.		D350-748-143	SHEET 3 OF 4
APPROVED		TITLE	SCALE
DE APPR.		CROSSTUBE (AS 350/355 HI FWD)	NTS
DATE	15.01.21	COPYRIGHT © 2015 BY DART AEROSPACE LTD	
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DQA: _____ Date: _____

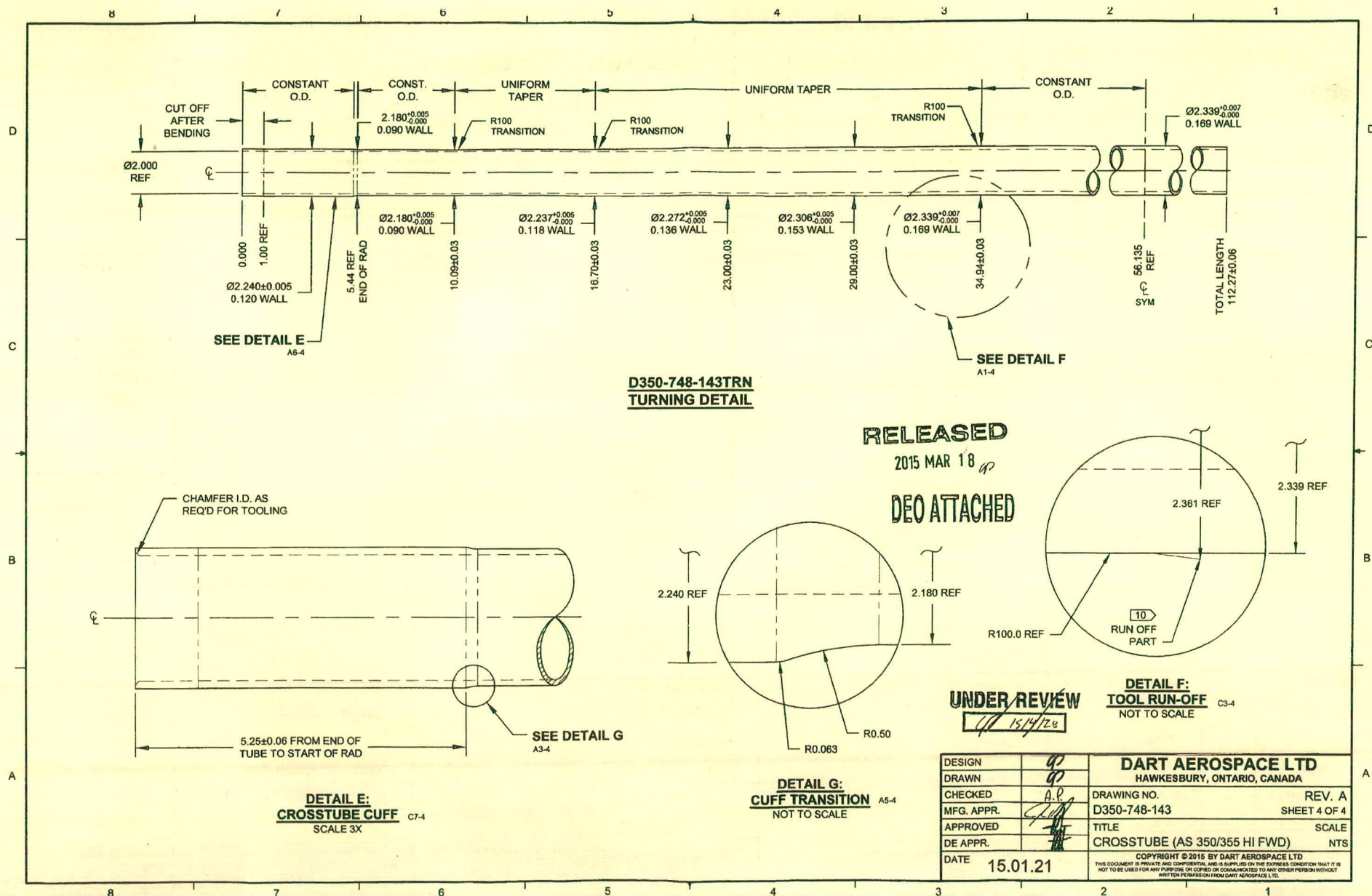
WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

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**D350-748-143TRN
TURNING DETAIL**

RELEASED
 2015 MAR 18
DEO ATTACHED

UNDER REVIEW
 15/4/26

DESIGN	90	DART AEROSPACE LTD	
DRAWN	90	HAWKESBURY, ONTARIO, CANADA	
CHECKED	A.P.	DRAWING NO.	REV. A
MFG. APPR.	[Signature]	D350-748-143	SHEET 4 OF 4
APPROVED	[Signature]	TITLE	SCALE
DE APPR.	[Signature]	CROSSTUBE (AS 350/355 HI FWD)	NT
DATE	15.01.21	COPYRIGHT © 2015 BY DART AEROSPACE LTD	
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.			

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width: 100%; border: none;"> <tr> <td style="width: 15%;">Skid-tube ☐</td> <td style="width: 15%;">Cross tube ☐</td> <td style="width: 15%;">Water Jet ☐</td> <td style="width: 15%;">Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																					
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Bending ☐	Set-up ☐	Folio/Program ☐																																																											
Centre Not Concentric ☐	BOM/Route ☐	Grain ☐																																																											
Cracks ☐	Broken/Damage/Defect ☐	Weld ☐																																																											
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Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐																																																											
OTHER : ☐																																																													

DRAWING NO. D350-748-143	TITLE CROSSTUBE	REV. A	DART AEROSPACE LTD ENGINEERING ORDER		D.E.O. NO. D350-748-143-A-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN <i>q</i>	CHECKED <i>ASS</i>	MFG. APPR. <i>[Signature]</i>	APPROVED <i>[Signature]</i>		DE APPR. <i>[Signature]</i>		
DATE 15.11.18	DATE 15.11.18	DATE 16.02.19	DATE FEB 19 2016		DATE 2016-02-19		

AMEND NOTE 2 (SHEET 1) AS FOLLOWS:

- 2) FINISH: PREPARE SURFACE PER DART QSI 005 4.1.4
 PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
 PAINT OUTSIDE PER DART QSI 005 4.2
 OR
 POWDER COAT WHITE (4.3.5.2) PER DART QSI 005 4.3

RELEASED
 2016-02-26

ECN 16-534

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 NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT
 WRITTEN PERMISSION FROM DART AEROSPACE LTD.

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width: 100%; border: none;"> <tr> <td style="width: 16.6%;">Skid-tube ☐</td> <td style="width: 16.6%;">Cross tube ☐</td> <td style="width: 16.6%;">Water Jet ☐</td> <td style="width: 16.6%;">Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐																						
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Large Fab ☐	Composite ☐	Supplier ☐																							
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval																		
Description Work Order Deviation				Disposition				Completed By																	
								Lead hand / Supervisor Approval Verification																	
								QC / QA Coordinator Approval																	
Root Cause		FAULT CATEGORY																							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐																				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐																				
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Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____																							
Misidentified ☐	Past Due ☐																								



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER **PO041591**

Supplier: SKY002-VC
Skyservice
6120 Midfield Road
Mississauga
ON
L5P 1B1 Canada
Phone: 905-678-5636
Fax: 905-678-5841

PO No: PO041591

PO Date: 11/5/18

Due Date: 11/9/18

Purchase Order

Revision:

Revision Date:

Ship-To Contact: Phone:

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground

Pymt Terms: Net 30

Freight Terms:

Special Comments: please note po041568 was open an cancelfor the jobs same as po041591

Items

Line Item	Job	Part	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	181665	D350-748-103	AS350 / AS355 Stainless Steel Fwd Crosstube : TC STC SH06-27 Issue 2, FAA STC SR02359NY 11/03/04, EASA STC EASA.10016903 Revision 2 10/09/03, BRAZIL 2009S04-04 09/04/06 ISSUE P/O TO SKY SERVICE: _____	Firmed	-	11/9/18	1 pcs	0 pcs	1 pcs	\$145.00/pcs	\$145.00
2	185582	D130-1048-042	EC130 Skidtube Assembly, RH ISSUE P/O: _____ Liquid Penetrant Inspection as per QSI 038 LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order NDT C OF C IS REQUIRED	Firmed	-	11/9/18	1 pcs	0 pcs	1 pcs	\$133.75/pcs	\$133.75
	185581			Firmed	-	11/9/18	1 pcs	0 pcs	1 pcs	\$133.75/pcs	\$133.75
Sub Total:							2	0	2		\$267.50

Plex 11/5/18 1:00 PM dart.lavoie.chanta



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER **PO041591**

Items											
Line Item	Job	Part	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
3	185578	D130-1048-041	EC130 Skidtube Assembly, LH ISSUE P/O: Liquid Penetrant Inspection as per QSI 038 LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order NDT C OF C IS REQUIRED	Firmed	-	11/9/18	1 pcs	0 pcs	1 pcs	\$133.75/pcs	\$133.75
	185580		1 X NOV 0 5 2018	Firmed	-	11/9/18	1 pcs	0 pcs	1 pcs	\$133.75/pcs	\$133.75
Sub Total:							2	0	2		\$267.50
4	182064	D130-1048-141	EC130 Fwd Crosstube *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** ISSUE P/O: Liquid Penetrant Inspection as per QSI 038 LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order NDT C OF C IS REQUIRED	Firmed	-	11/9/18	1 pcs	0 pcs	1 pcs	\$133.75/pcs	\$133.75
	182059		1 X NOV 0 5 2018	Firmed	-	11/9/18	1 pcs	0 pcs	1 pcs	\$133.75/pcs	\$133.75
Sub Total:							2	0	2		\$267.50
5	182056	D130-1048-241	EC130 Aft Crosstube *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** ISSUE P/O: Liquid Penetrant Inspection as per QSI 038 LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order NDT C OF C IS REQUIRED	Firmed	-	11/9/18	1 pcs	0 pcs	1 pcs	\$75.00/pcs	\$75.00
	182057		1 X NOV 0 5 2018	Firmed	-	11/9/18	1 pcs	0 pcs	1 pcs	\$75.00/pcs	\$75.00
Sub Total:							2	0	2		\$150.00
Grand Total:										\$1,097.50	

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Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER PO041591

Order Notes

Procurement Quality Clauses

A005 right of entry
A012 chemical and physical test report
A016 personnel qualification
A017 raw material identification (as applicable)

A022 Apical Processing
A024 process certifications
A026 certification of material conformance

A041 quality management system
A042 dart notification by supplier
A043 retention of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

Plex 11/5/18 1:00 PM dart.lavoie.chantal

**skyservice****Work Order Traveler**
Sky Service F.B.O. Inc.

10105 Ryan Avenue, Dorval, Quebec, H9P 1A2

TCCA AMO 53-89 / EASA 145.7142 / BDA AMO 385

WO #: MWO38034	Customer: Dart Aerospace Ltd.	Dept: NDT YUL	Reference: PO041568 ✓
Descr:	PN:	S/N:	Qty: 1 + PO041591
Make:	Model:	Reg:	A/C S/N:
TSN:	CSN:	TSO:	
Task: UNSCHEDULED			Sequence: 1

Work Required:

CARRY OUT NDT (LIQUID PENETRANT CRACK TEST) ON THE FOLLOWING 5 CROSSTUBES AND 4 SKIDTUBES:

P/N: D130-1048-141 FWD CROSSTUBE

1- JOB SHEET# 182064 ✓ 2- JOB SHEET# 182059 ✓

P/N: D130-1048-241 AFT CROSSTUBE

3- JOB SHEET# 182056 ✓ 4- JOB SHEET# 182057 ✓

P/N: P/N: D350-748-103 FWD CROSSTUBE

5- JOB SHEET# 181665 ✓

P/N: P/N: D130-1048-041 EC130 SKIDTUBE LH

6- JOB SHEET# 185580 ✓ 7- JOB SHEET# 185578 ✓

P/N: P/N: D130-1048-042 EC130 SKIDTUBE RH

8- JOB SHEET# 185581 ✓ 9- JOB SHEET# 185582 ✓

DAS
68
9-89

Action Taken:	Date:	Initial/Stamp:				
LIQUID PENETRANT INSPECTION CARRIED OUT ON ITEMS LISTED ABOVE (ITEMS 1-9) AS PER ASTM1417M-16 -NO CRACK FOUND. PEN.(ZL-56, MPO13600), DEV.(SKD-S2, MPO11715), CLEANER(SKC-S, MPO MPO19368)	2 NOV 2018					
Description	Location	P/N	Qty	Batch	S/N Off	S/N On

I certified that the maintenance described above has been performed in accordance with the applicable standard of airworthiness.

Signature:	ACA/SCA Stamp:	Date: 2 NOV 2018
Name: CHRISTIAN BRIEN		

